

## **REMARKS**

In the Office Action dated July 11, 2006, the Examiner rejected claims 2-5, 9, 11-13, 15, 17, 18, 21-23, 28, 29, 38-42, 45, 46, 50, 52-54, 56-60, 63 and 64 under 35 U.S.C. § 103(a) as unpatentable over May, Thomas et al., "Reducing the Peak-To-Average Power Ratio in OFDM Radio Transmission Systems" ("May") in view of U.S. Patent No. 5,262,734 to Dent et al. ("Dent"). The Assignee notes that paragraph four indicates a rejection of the claims over May in view of U.S. Patent No. 6,141,390 to Cova ("Cova"), but the Office Action never subsequently makes any reference to Cova. Instead, the Examiner references Dent. The Assignee understands the rejection to be over May in view of Dent and not Cova. The Examiner also rejected claims 43 and 44 under 35 U.S.C. § 112 because of improper dependencies.

In the Office Action, the Examiner allowed claims 14, 19, and 20. The Examiner also objected to claims 6-8, 10, 24-27, 47-49, 51, 55, 61 and 62, indicating that they would be allowable but for their dependence on rejected claims.

The Assignee amends claim 43 to correct the dependencies of claims 43 and 44. No new matter has been added. Claims 2-15, 17-29, and 38-64 are currently pending. Claims 1, 16, and 30-37 have been cancelled.

### **Rejection of Claims 2-5, 9, 11-13, 15, 17-18, 21-23, 28-29, 38-42, 45-46, 50, 52-54, 56-60, 63 and 64**

Claim 5 recites a combination of elements including, among other things, "a substantially linear amplifier having an input coupled to said combining circuit." The Examiner correctly recognized that May does not disclose this feature of claim 5 by stating:

May et al does not teach the inclusion of a linearizer or linearizing limitations (i.e. May does not teach the limitation

of predistorting the modulated signal prior to the linear amplification).

Office Action at p. 3. In this respect, the Examiner's analysis is consistent with the analysis of Dr. Neil Birch as set forth in the attached Declaration under 37 C.F.R. § 1.132 ("Second Declaration").

Instead of a "substantially linear amplifier," as claimed, May discloses an "ideal limiter" in Fig. 1 with normalized input and output amplitudes shown in Fig. 1. See Second Declaration at ¶ 9. The amplifier described in May is a classic form of non-linear amplifier. Id. at ¶ 10. Such amplifiers are also referred to as "clipping amplifiers" or "saturating amplifiers." Id. Indeed, May describes a theoretical system including an additive correcting function that reduces amplitude peaks exceeding the clipping threshold  $A_0$  of the non-linear clipping amplifier. Id. at ¶ 11. In fact, the correcting function in May is based on the non-linear characteristics, i.e., the clipping threshold, of the non-linear amplifier. Id. at ¶ 12. Therefore, at least because the core teaching of May is to generate and apply a correcting signal that is tailored to the non-linearity of the amplifier used in the system, persons skilled in the art would not understand May as disclosing, or rendering obvious, the "substantially linear amplifier," as recited in claim 2. Id. at ¶ 14.

The Assignee notes that the inventor, Ronald McCallister, directly contradicted the Examiner's analysis with respect to the claimed "substantially linear amplifier" in an "Inventor's Submission" dated August 16, 2006 ("Inventor's Second Submission"). In the Inventor's Second Submission, the inventor contradicts the Examiner by characterizing the "ideal limiter" in Fig. 1 of May as "describing the claimed linearizer or linearizing limitations." Second Submission at p. 2. The inventor's Second Submission

also contradicts the sworn declaration of an expert in the field of the invention. See Second Declaration at ¶¶ 9-12. At least for these reasons, the un-sworn Inventor's Second Submission should be given no weight by the Examiner.

Instead of relying on May, the Examiner relied on Dent with respect to the "substantially linear amplifier," as recited in claim 5. See Office Action at p. 3. The Examiner states that Dent discloses "a digital predistortion circuit 28 (digital linearizer)." Id. Indeed, Dent describes a linear RF power amplifier 10 that produces intermodulation products at frequencies not present at the amplifier input. Second Declaration at ¶ 15. The amplifier in Dent, however, is not the "ideal limiter" required by the system modeled in May. Id. at ¶ 16. In fact, May's system would be inoperable if the linear amplifier of Dent were substituted for May's non-linear amplifier at least because Dent's linear amplifier has no disclosed clipping threshold. Id. at ¶ 16.

Thus, at least because the combination of May and Dent would result in an inoperable system, they cannot render claim 5 obvious. See M.P.E.P. § 2143.01, part V ("If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification.").

In addition, claim 5 recites a combination of elements including, among other things, "a delay element coupled between said first pulse-spreading filter and said combining circuit." The Examiner's position in the Office Action is that "a delay element" as claimed is inherent in May. See Office Action at p. 3. In this respect, the Examiner has relied on an un-sworn "Inventor's Submission" dated July 6, 2005 ("Inventor's First Submission"). Regarding the Inventor's First Submission, the Examiner has stated that

"the examiner is not aware of any requirement that the inventor has to submit a sworn opinion." Id. at p. 8. The Examiner has also stated that "[i]t is therefore the Examiner's position that the inventor is the better expert in the field of his own invention." Id. at p. 7-8. For the reasons stated below, however, the Assignee believes that the Examiner should reconsider and dismiss the Inventor's First Submission.

Although the inventor states in both submissions that "I [Ronald D. McCallister] . . . have no interest in the application," the inventor has not fully disclosed his interests. In fact, Mr. McCallister has not disclosed that he has a potential adverse interest in the patent application. After the current Assignee obtained full rights to this patent application, the inventor, Ronald McCallister, attempted to obtain a license for U.S. Patent No. 6,104,761 patent ("the '761 patent"), upon which this reissue is based, for his employer CrestCom. See Declaration by Paul Bernkopf at ¶ 4 and 5. Mr. McCallister was unsuccessful in his attempts to obtain a license. Id. During negotiations, however, Mr. McCallister stated that "an exclusive license to [the '761 patent] . . . might nonetheless be valuable to CrestCom." Id. at ¶ 5. Thus, Mr. McCallister and his apparent employer, CrestCom, may gain from unnecessarily narrow claims, or no claims, being allowed in this patent application.

To the contrary, the declarations by Dr. Birch not only show that Dr. Birch is a well-respected expert in the field, but that "willful false statements and the like so made [by Dr. Birch] are punishable by fine or imprisonment." Despite the opportunity, the inventor has not made such a statement in either the First or Second Inventor's Disclosure. In addition, Mr. McCallister has not, despite the opportunity, specifically rebutted the First Declaration of Dr. Birch filed May 18, 2006.

The attached declaration provides further evidence that even if May inherently disclosed "that the input signal is delayed by at least half of the pulse shape duration," which it does not, May would not enable one of ordinary skill in the art to carry out the claimed invention. Second Declaration at ¶¶ 18-21. The peaks in May's correcting signal are not offset in time from the modulated signal by a constant interval. Id. at ¶ 19. In addition, feeding May's modulated signal through a fixed delay element will not correctly align the amplitude peaks with the peaks in the correcting signal. Id. May provides no description of circuitry for correctly aligning the amplitude peaks with the peaks in the correcting signal. Id. In addition, a person of ordinary skill in the art could not implement such a system described in May without undue experimentation. Id.

Without undue experimentation, May does not enable one of ordinary skill in the art to implement "a delay element coupled between said first pulse-spreading filter and said combining circuit," as recited in claim 5. Id. Further, Dent does not cure the deficiencies of May. Dent does not disclose or suggest "a delay element coupled between said first pulse-spreading filter and said combining circuit," as recited in claim 5. On the other hand, one embodiment in the patent specification enables "a delay element" by disclosing a fixed delay element. See Fig. 2, element 138 ("Delay Element"). The Assignee notes, however, that claim 5 is not limited to a fixed delay.

For these reasons, the Assignee requests that the Examiner reconsider and withdraw the rejection of claim 5. Claims 2-4, 9, and 38 depend on claim 5 and include all the limitations of claim 5. Thus, for the reasons set forth above, claims 2-4, 9, and 38 are not obvious over May in view of Dent. Therefore, the Assignee respectfully request

that the Examiner reconsider and withdraw the rejection of claims 2-4, 9, and 38 under § 103(a).

Although claims 11, 15, 18, 21, 23, 41, and 57 are of different scope from each other and claim 5, claims 11, 15, 18, 21, 23, 41, and 57 recite some features similar to claim 5, e.g., "linear amplifier" or "linearly amplifying." For example, claims 11, 15, and 41 recite a combination of elements including, among other things, "a substantially linear amplifier having an input coupled to said combining circuit." Claims 18, 21, and 57 recite a combination of elements including, among other things, "linearly amplifying said constrained-envelope signal stream to produce said constrained-envelope communications signal. Claim 23 recites a combination of elements including, among other things, "a substantially linear amplifier coupled to said complex summing circuit and configured to produce a radio-frequency broadcast signal."

In addition, although claims 18, 23, 41, and 57 are of different scope than each other and claim 5, they include some similar features as claim 5, e.g., "a delay" or "delaying." For example, claims 18 and 57 additionally recite "delaying said filtered signal stream." Claim 23 additionally recites "a delay element coupled to said Nyquist-type filter and configured to produce a delayed signal stream synchronized with said constrained-bandwidth error signal stream." Claim 41 additionally recites "a delay element coupled between said pulse-spreading filter and said combining circuit."

Thus, claims 11, 15, 18, 21, 23, 41, and 57 are allowable for at least some of the same reasons as claim 5. The Assignee respectfully request that the Examiner reconsider and withdraw the rejection of claims 11, 15, 18, 21, 23, 41, and 57 under § 103(a).

Claims 12, 13, 17, 22, 28, 29, 39, 40, 42, 45, 46, 50, 52, 53, 54, 58, 59, 60, 63, and 64 depend on one of claims 11, 15, 18, 21, 23, 41, and 57 and include all the features of their respective base claims. At least for this reason, claims 12, 13, 17, 22, 28, 29, 39, 40, 42, 45, 46, 50, 52, 53, 54, 58, 59, 60, 63, and 64 for the reasons given above and the Assignee respectfully requests that the Examiner reconsider and withdraw the rejection of these claims.

Claim 6 recites a combination of elements including, among other things, "wherein said pulse-spreading filter is a Nyquist-type filter." The Examiner does not point to any references regarding the Nyquist-type filter. Instead, the Examiner apparently takes an "Official Notice" by stating, "a Nyquist filter is well known in the art as a pulse spreading filter. Given that fact, it would have been obvious to one [of] skill in the art to implement the pulse spreading filter as a [N]yquist filter so as to take advantage of its enhanced technological features." Office Action at p. 4. The Assignee respectfully disagrees with this assertion. Assignee respectfully requests that the Examiner cite references in support of the Examiner's assertion or provide an affidavit if it is within the Examiner's personal knowledge. See M.P.E.P. § 2144.03. Otherwise, the Assignee respectfully requests that the examiner reconsider and withdraw the rejection of claim 6 under § 103(a).

Claim 9 also recites a combination of elements including, among other things, "said first and second pulse-spreading filters exhibit substantially equivalent transfer characteristics." Again, the examiner does not point to any references regarding this element of claim 9. Instead, the Examiner apparently takes an "Official Notice" of this entire element by stating, "it would have been obvious to one skill in the art to configure

the first and the second pulse spreading filters in such a way as to exhibit equivalent transfer characteristics in order to satisfy system requirements." Office Action at 4. The Assignee respectfully disagrees with this assertion. Assignee respectfully requests that the Examiner cite references in support of the Examiner's assertion or provide an affidavit if it is within the Examiner's personal knowledge. See M.P.E.P. § 2144.03. Otherwise, the Assignee respectfully requests that the examiner reconsider and withdraw the rejection of claim 9 under § 103(a).

In addition, claim 13 recites a combination of elements including, among other things, "interleaver coupled to said phase mapper." Again, the examiner does not point to any references regarding this element of claim 13. Instead, the Examiner apparently takes an "Official Notice" of this entire element by stating, "it would have been obvious to one skill in the art to use an interleaver coupled to the mapper in order to minimize signal error in reconstructing the signal at the receiver." The Assignee respectfully requests that the Examiner cite references in support of the Examiner's assertion or provide an affidavit if it is within the Examiner's personal knowledge. See M.P.E.P. § 2144.03. Otherwise, the Assignee respectfully requests that the examiner reconsider and withdraw the rejection of claim 13 under § 103(a).

Further, claim 38 recites a combination of elements including, among other things, "wherein the delay element is a fixed delay element." Again, the examiner does not point to any references regarding this element of claim 13. Instead, the Examiner apparently takes an "Official Notice" of this entire element by stating, "it would have been obvious to one skill in the art to implement the delay as a fixed delay rather than a variable delay so as to reduce system complexity." The Assignee respectfully requests



that the Examiner cite references in support of the Examiner's assertion or provide an affidavit if it is within the Examiner's personal knowledge. See M.P.E.P. § 2144.03. Otherwise, the Assignee respectfully requests that the examiner reconsider and withdraw the rejection of claim 13 under § 103(a).

The Office Action dated July 11, 2006, contains certain characterizations of the invention, the application claims, and the prior art with which the Assignee does not necessarily agree. Unless expressly noted otherwise, Assignee declines to subscribe to any statement or characterization made in the Office Action.

In view of the foregoing amendments and remarks, Assignee respectfully requests reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 50-1070.

Respectfully submitted,

HARRITY SNYDER, LLP

Dated: June 11, 2007

By: /Kenneth M. Lesch/

Kenneth M. Lesch

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**Attachments:** Declaration Under 35 U.S.C. § 1.132 by Neil Birch  
Declaration under 35 U.S.C. § 1.132 by Paul Bernkopf